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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,597	08/01/2003	James G. Pipe	GEMS8081.165	1596
27061	7590	08/24/2004	EXAMINER	
ZIOLKOWSKI PATENT SOLUTIONS GROUP, LLC (GEMS) 14135 NORTH CEDARBURG ROAD MEQUON, WI 53097			VARGAS, DIXOMARA	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/604,597	PIPE, JAMES G.	
	Examiner	Art Unit	
	Dixomara Vargas	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/10/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Chapman (US 6,697,507 B1).

With respect to claim 1, Chapman discloses a method of diffusion weighted MR imaging comprising the steps of: for each echo train, splitting MR data acquisition into non-parallel odd and even echo acquisition blades, for each echo train, rotating the odd and even acquisition

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blades of data acquisition about an origin point with respect to a previous acquisition (Column 9, lines 9-18; Figure 2), and combining data collected from each odd and even data acquisition blades into a composite set of MR data for reconstruction (Column 9, lines 35-38; Figures 5 and 6).

4. With respect to claims 2 and 14, Chapman discloses the step of collecting each blade of MR data with a separate transmit and receive coil (Column 13, lines 54-67; Figure 12, transmitter #12 and receiver #28).

5. With respect to claims 3, 10 and 17, Chapman discloses the step of phase correcting selected MR data to remove spatially varying phase differences between refocusing pulses applied to induce each echo train and the receive coil (Column 9, lines 5-38).

6. With respect to claim 4, Chapman discloses the step of phase correcting the collected MR data to remove spatially varying differences resulting from application of diffusion weighting gradients (Columns 8-9, lines 17-41 and 5-38 respectively).

7. With respect to claims 5, 12 and 13, Chapman discloses the step wherein the origin point is positioned in a center of k-space (Column 10, lines 16-22) and the odd and even acquisition blades of a given acquisition are rotated with respect to one another (Figure 2).

8. With respect to claims 6 and 15, Chapman discloses the step wherein each blade is similarly sized (Figure 2).

9. With respect to claim 7, Chapman discloses the step wherein each blade has a width equal to one-half a width of a composite blade of the two separate blades of data acquisition (Column 8, lines 37-41).

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10. With respect to claims 8, 11 and 20, Chapman discloses the step of applying fast spin echo diffusion weighted imaging pulse sequence to acquire each blade of data acquisition (Column 7, lines 4, wherein the sequence used is EPI).

11. With respect to claims 9 and 16, Chapman discloses an MRI apparatus comprising (Figure 12): a magnetic resonance imaging (MRI) system having a plurality of gradient coils (#20, #21 and #22) positioned about a bore of a magnet to impress a polarizing magnetic field (#26) and an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images (#12 and #28), and a computer programmed to (#10): segment acquisition of each echo train into an odd section and an even section, wherein each odd and even section extends through an origin point; acquire a segment of MR data; rotate each segmented acquisition a prescribed interval about the origin point for each subsequent acquisition (Column 9, lines 9-18; Figure 2), combine MR data from corresponding odd and even sections into a composite set of MR data; and reconstruct an image from the composite set (Column 9, lines 35-38; Figures 5 and 6).

12. With respect to claim 18, Chapman discloses each strip of k-space includes multiple k-space lines (Figure 2).

13. With respect to claim 19, Chapman discloses each odd acquisition includes a strip of k-space spaced 90 degrees from that for each strip of an even acquisition (Figure 2).

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Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses MR systems with odd and even data sets combined in a composite image.

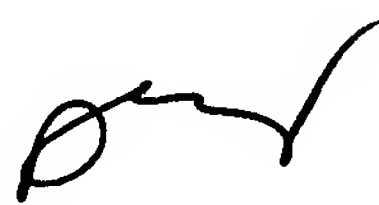
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dixomara Vargas
Art Unit 2859
August 6, 2004



Diego Gutierrez
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